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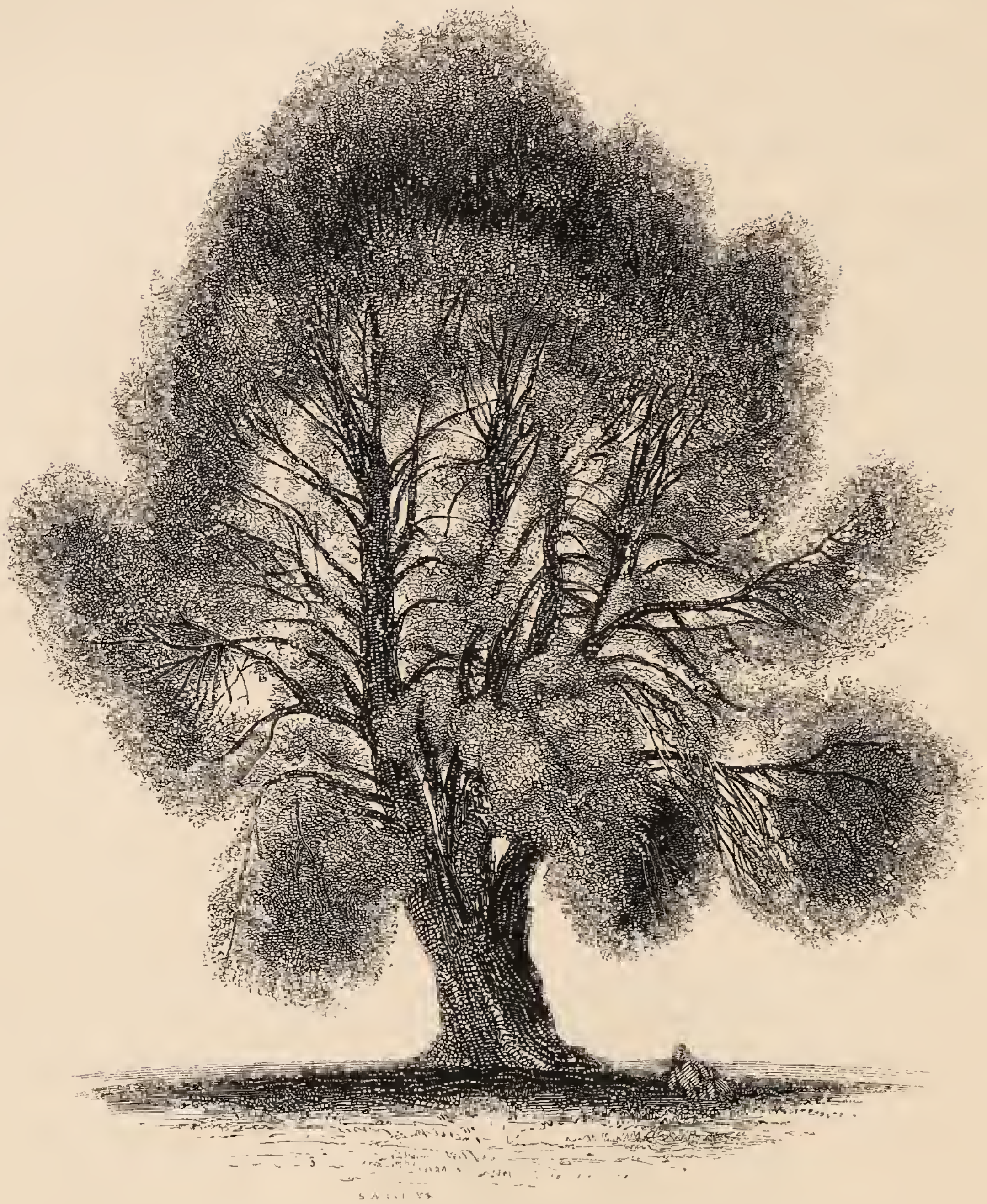
Sphinx, *Smerinthus populi*, and we have also found upon it those of *Cerura vinula*, *Notodonta ziczac*, *Clostera reclusa*, *Leiocampa dictæa*, and *Calyptra libatrix*.

The specific characters, according to Willdenow, are, branches round and smooth, leaf-stalks compressed, the disk of the leaves roundish-ovate, the end acutely pointed, and with a shallow sinus at the base, serrated, with equal adpressed teeth, smooth, except being slightly ciliated on the edge.

At Twizell, twenty years planted, it is thirty-five feet high, and two feet six inches in circumference at two feet from the ground. Our figure is a portrait of this tree. At Howick Hall, the seat of the Earl Grey, there are specimens of larger dimensions.



Populus nigra. Linn.

BLACK POPLAR.

Populus nigra, Linn. sp. pl. 1464.
Smith's Eng. Bot. t. 1910. Id. Eng. Flor. iv. p. 245.
Hooker's Flor. Scot. p. 289.
Mackay's Flor. Hibern. part i. p. 251.
Loudon's Arb. Brit. part iii. p. 1652.

The specific or botanical characters of this species, according to Smith and Hooker, are, leaves deltoid, pointed, serrated, smooth on both sides, catkins lax, cylindrical, stigmas four, simple and spreading.

The wide distribution of this species throughout Britain, and the localities in which we have seen it growing apparently in a wild and natural state, are strongly in favour of its being indigenous, although Sir W. J. Hooker, in the "Flora Scotica," mentions it as of doubtful origin; nothing however is said by the old English authors to lead to such a conclusion, and we find that its geographical distribution is nearly co-extensive with that of *Pop. alba*, and *Pop. canescens.* It is a tree of rapid and vigorous growth, and attains the size of one of the first magnitude, and as it generally possesses a fine stem and an ample head, it is often highly ornamental when planted in an appropriate situation, and in combination with other quick-growing trees. Formerly it was freely introduced into plantations, but within the last twenty years some of the American species have taken its place, particularly the *Pop. monilifera*, or Black Italian Poplar, one of the most valuable and usually the largest of the genus. The Ontario Poplar, *Pop. candicans*, a species nearly allied to, if not a variety of, the *Pop. balsamifera*, Balsam Poplar, or Tacamahac, has also lately come into fashion, but as it is only a tree of the second rank, it is not likely to be cultivated for profit, but merely for the effect of its tufted and dark green foliage, and the pleasant balsamic odour diffused by the buds and newly expanded leaves in early spring.

In a rich moist surface soil, particularly in the vicinity of running water, the growth of the Black Poplar is very rapid, being at the rate of three or four feet every year; it attains perfection in forty or fifty years, at which age it ought to be cut down if meant for use, as it begins to decay soon after this period.

The wood is of a pale yellowish white colour, soft, and easily worked, and is much used by turners for bowls, and other wooden ware, and indeed is applicable to most purposes for which the timber of the Poplars is adapted. Upon the Continent, and especially in Flanders, it is extensively planted as a hedge-row tree together with the White Poplar, and cut down at the age of twenty-four or twenty-five years, to make sabots or wooden shoes, for which its lightness and tenacity of fibre adapt it.

In dampish situations, planted in mass, or mixed with the Grey Poplar, where poles, small rafters, and railing, are in demand, it would make a quick return, as a growth of eight or ten years would render it fit for these purposes.

When cut over young, it throws up numerous shoots, which may be used like willows for basket-making; it also bears lopping much better than the species already described, and as a pollard produces an abundant supply of stakes and poles, but is almost useless as fuel, in which respect, compared with the beech, it is stated to be as 792 to 1540.

The bark is used by the tanner, and in Russia it enters into the manufacture of Morocco leather, and as it becomes very thick and corky upon old trees, it affords a material to support and float the nets of the fisherman.

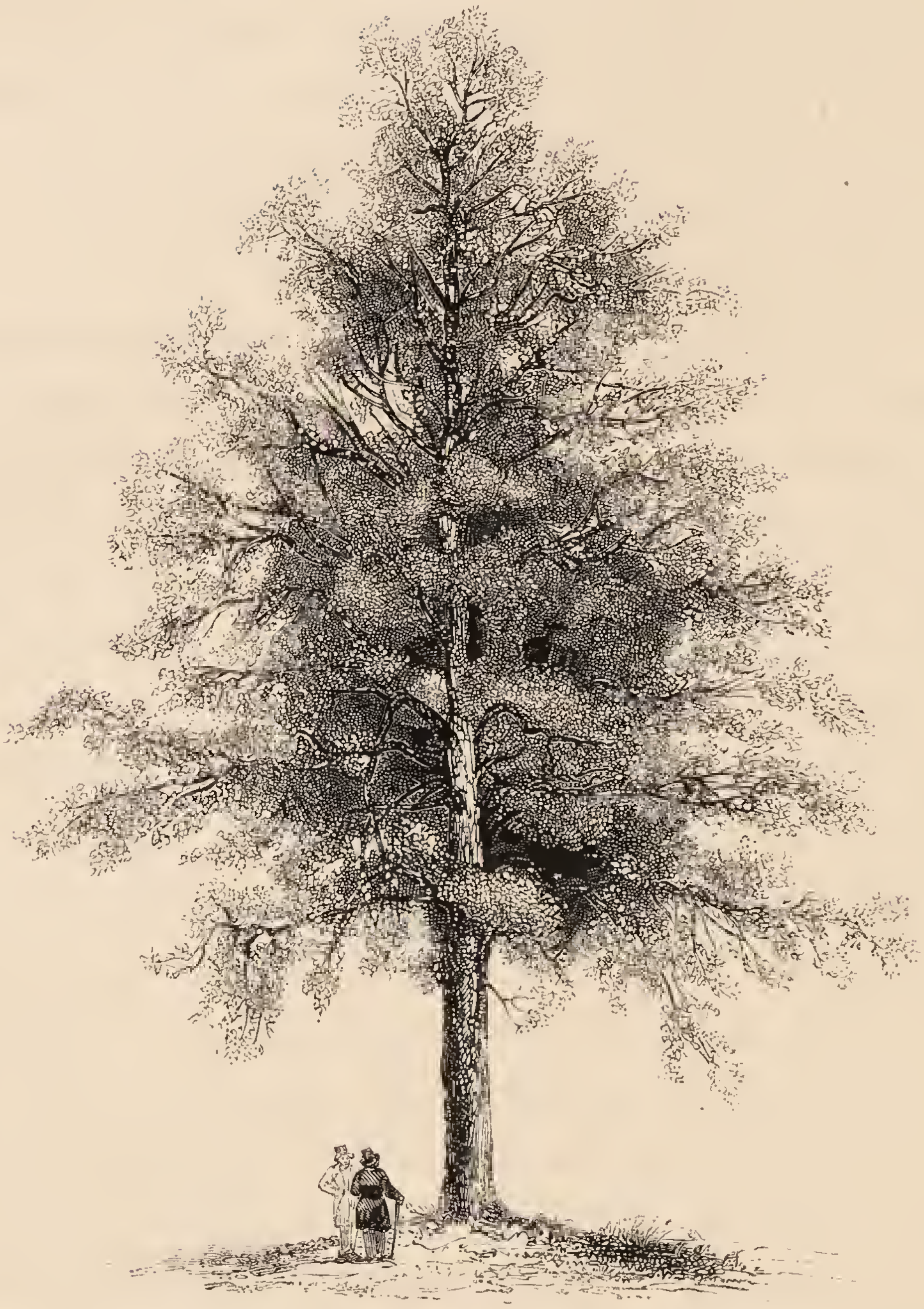
The foliage of the Black Poplar is of a pleasant pale green, smooth and shining, and producing sparkling and ever-varying lights, as it flutters with the gentlest zephyr, in the beams of the sun; it is, however, late in expanding, as it is seldom in full leaf before the end of May or beginning of June, a disadvantage that also attends the cultivation of the Black Italian Poplar.

The catkins of the male appear in March or April, long before the expansion of the leaves, and, being large and of a deep red colour, produce a rich effect at that early period of the year.

The capsules or seed vessels of the female are round, and contain a pure white cottony down, in which the seeds are enveloped; attempts to turn this substance to profit in the manufacture of hats, cloth, and paper, have been made, but owing to the shortness and want of elasticity of its fibre, without much success.

As in several other species, the buds are protected by a gummy varnish, having an agreeable smell, and which formed the *unguentum populeon*, or profitable ointment of Gerard; Loudon also mentions that after being macerated in boiling water, bruised in a mortar, and pressed, they yield a fatty substance, which burns like wax, and emits a fine odour.

Several of the caterpillars we have already mentioned as feeding upon the leaves of other poplars, are also found upon this tree; it also produces protuberances of varied form and shape upon the petioles of the leaves and young shoots, which are the nidi of the *Aphis populi*. Among the statistics of existing trees mentioned in the "Arboretum Britannicum," are several from seventy to eighty feet high, and one upwards of ninety, with a trunk of more than five feet in diameter. It is readily propagated by cuttings or truncheons, which may either be inserted at once, where they are intended to remain, or rooted for a season in the nursery.

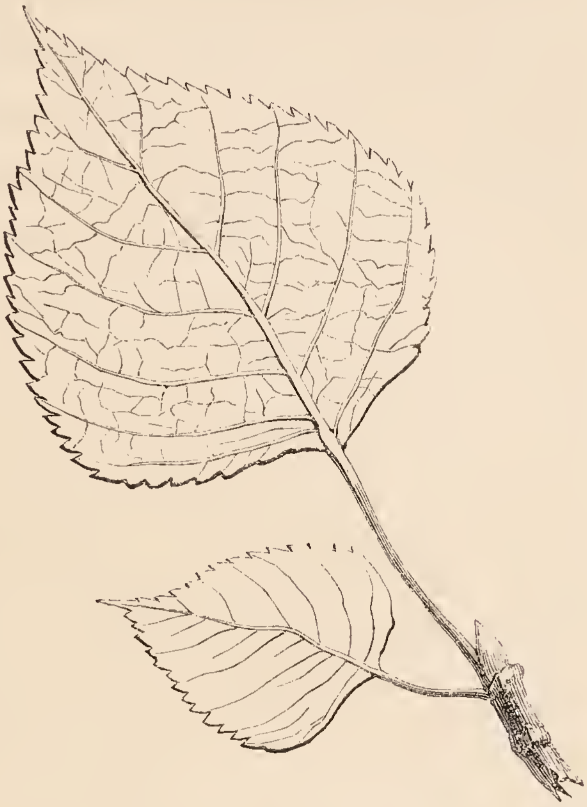


Populus monilifera. Ait.

BLACK ITALIAN, OR NECKLACE-BEARING POPLAR.

Populus monilifera,	Ait. Hort. Kew. ed. i, iii. p. 406. Pursh's Flor. Amer. Sept. 2. p. 618. Watson's Dend. Brit. t. 102. Loudon's Arb. Brit. p. iii. ch. iii. p. 1657.

The specific characters of *Pop. monilifera,* which seems nearly related to the Canadian Poplar (*Pop. Canadensis*),



and of which kind Loudon conjectures it may possibly be an improved variety, are as follow:—annual shoots more or less angular, the branches becoming round after the first year; leaves deltoid, glabrous, except the edge, which when young is ciliated, generally subcordate at the base, serrated, the serratures with incurved points, tip pointed and acute, petioles compressed at the upper part, slender, generally as long as the disk of the leaves. Catkins of the male five or six inches long, the flowers upon pedicles, stamens sixteen. Female with about forty flowers in a catkin, stigmas four, dilated and jagged.

Although bearing the name of Black Italian Poplar, it is still a matter of uncertainty to what country it really belongs, as no direct proof of its having been found in a wild and natural state, either in Europe, upon the American continent, or elsewhere, has yet been produced. There seems no doubt, however, of its having been first introduced into Britain from North America, first in 1772 by Dr. John Hope, who brought it from Canada, and again by a Scotch gentleman, a few years afterwards, from whom it was obtained by the Messrs. Dickson, Nurserymen at Hazendean, who first brought it prominently into notice and extensive cultivation, and to whom it is also indebted for its present name; Mr. Archibald Dickson having understood that it was a species common to

Italy as well as to North America. We may, however, remark that, although imported to England from America, it has never been found growing in a wild state in the latter country, neither of the Michauxs, father or son, having met with it, and Pursh it appears has only seen it growing in gardens, and never in a natural state. We are not aware how long it has been known or cultivated in Europe, but probably for a considerable period, as it has been planted to a great extent in parts of Switzerland, and is well known to the French by the name of *Peuplier Suisse*, so that there does appear to be some foundation for another conjecture of Loudon's, viz. that it may have originated in Switzerland or Italy, and been afterwards carried from thence to North America. If it be only a variety of some other species, a circumstance by no means improbable, it may, if of European origin, either have sprung from the seeds of the Black Poplar, *Pop. nigra*, or from those of the Lombardy Poplar, *Pop. fastigiata*, (which Loudon again supposes may itself be a variety of *Pop. nigra*,) as it appears to partake in an intermediate degree of the character of both kinds, being more fastigiate in its growth than the one and less so than the other; or if it originated in America, from the *Pop. Canadensis*, to which it is generally allowed to appear nearly related. Of all the Poplars hitherto introduced, it is, we think, by far the most valuable, looking to it in the light of a useful and profitable timber tree, as it grows with astonishing rapidity, and produces a timber of large scantling and excellent quality, equal if not superior to that of any other of its genus. During youth the side branches are subordinate to the main stem, which shoots up erect and perfectly straight to a height of eighty, ninety, and even one hundred and twenty feet. The ramification of young trees, though not so fastigiate as that of the Lombardy Poplar, is more so than that of most other kinds; and it is not till it has reached the age of twenty-five or thirty years, and attained the dimensions of a first-rank tree, that its principal branches begin to swell and to take a more horizontal and spreading direction. To attain its greatest developement it requires a free moist loam, and it thrives particularly well near to running water; it also succeeds and grows to a very large tree upon stiffish loam, and even upon light and sandy soil makes good progress. As a hedge-row tree in exposed situations we have also found it to succeed beyond expectation, as it resists or stands well up to the wind, and, in growth far outstrips the ash, elm, and indeed any other tree, except perchance the *Salix alba* and *Salix Russelliana.* It requires both air and space to arrive at perfection, and does not succeed well in mixed plantations closely cooped up by other trees, or even when planted thickly by itself; therefore, when intended for full-sized timber and grown in mass, the plants ought to be put in at wide distances or from sixteen to eighteen feet apart. It may, however, be planted much thicker when intended for poles, small rafters, &c., as the trunk in a few years runs up to a very great height, without much taper or difference of diameter; and such plantations upon a good soil we have no doubt would yield a great and rapid profit, where wood of this description is in demand.

The wood is of a greyish white colour, tough when seasoned, and if kept dry very durable; its great size renders it fit for the largest buildings, and as flooring for manufactories and other erections nothing can surpass it, as in addition to the property of not splitting by percussion it possesses the peculiar advantage of not easily taking fire, and even when ignited burning without flame or violence.

As an ornamental tree it well deserves a place in extensive grounds, its spiry height and pyramidal form before it becomes aged, being well calculated to break long horizontal lines, or the monotonous effect of round-headed trees; it also, in a great measure from its semifastigiate growth in the young state, supplies the place of the Lombardy Poplar in such scenery, either of wooded landscape or in combination with buildings, as is improved by the presence of that tree. The principal objection to its frequent introduction in ornamental scenery is the late period of its coming into leaf, and the comparatively early one at which the foliage is shed; in the north of England it is seldom in full leaf before the middle of June, and is again denuded by the end of October.

The caterpillars of *Cerura vinula* and *Cer. furcula*, as well as that of *Smerinthus populi*, feed upon this Poplar. We have also found those of several of the notodontidæ, that of *Calyptra libatrix*, and also the larva of a large tenthredinous fly; the stem of young trees is also subject to the attack of *Cryptorynchus lapathi*, and in some seasons we have had several plants completely drilled by the larvæ of this weevil.

In addition to the trees particularized in the "Arboretum Britannicum," one of the largest and finest, and perhaps, also, one of the oldest specimens of the species in Britain, is now growing at Maxwell heugh, near Kelso. The trunk, previous to dividing into the enormous limbs which form the head, is sixteen feet and a half in height; at the base it measures thirty-one feet in girth, at two feet above the ground twenty-one feet, and at ten feet above the base eighteen feet; its solid contents are found to be upwards of nine hundred feet, and yet this enormous vegetable production cannot be much above sixty years old. At Twizell, planted in light free loam about twenty-two years ago, it is upwards of sixty feet high, with a straight continuous trunk, and measures in girth, at two feet from the ground, five feet five inches: others of a younger age show an equal rapidity of growth.

It is easily propagated by cuttings made of the young wood, which ought to be planted during winter or early spring. We commonly keep them in the nursery for a year or two, by which time they become well rooted and attain a height of five or six feet, and never fail to succeed when transferred to their permanent stations.

Populus fastigiata. Desf.

LOMBARDY POPLAR.

Populus fastigiata,	Desf. Hist. Arb. ii. p. 469.
	Loudon's Arb. Brit. part III. ch. ciii. p. 1610.
Pop. dilatata,	Ait. Hort. Kew. ed. III. p. 406.
	Willd. sp. pl. iv. p. 804.

In its close fastigiate growth and cypress-like form, which seems to be retained during the whole of its existence, the Lombardy Poplar is too conspicuous not to be immedi-

ately recognized and readily distinguished from all other species of the genus; the trunk also is much more deeply furrowed than that of any other Poplar, and the grooves often assume a spiral or twisting direction, and give the entire stem the appearance of being made up of several plants that had united and become connected together. It grows in favourable situations and in good soil with great rapidity, often attaining a height of sixty or eighty feet in less than thirty years, and one instance is mentioned in the "Arboretum Britannicum," of a tree, still we believe growing at Great Tew in Oxfordshire, that at fifty years old had reached the spire-like height of one hundred and twenty-five feet.

As might be expected in a tree of so rapid a growth, its duration is very brief compared with the longevity of slower-growing trees, and most of the plants first introduced into the kingdom, which took place about eighty years ago, are now either dead or in a state of decay; such is the case with those at Blenheim mentioned by Gilpin, which were planted about the year 1760, or soon after Lord Rochford had imported the first cuttings of this Poplar from Turin.

By some dendrologists the Lombardy Poplar is considered indigenous to that province or district of Italy, and the fact of young plants of this kind as well as of *Pop. nigra* springing up on the banks of the Po, where the surface soil has in part been washed off by the overflowing of that river, is adduced by Signor Manetti in favour of such an opinion, basing it on the presumed fact that the seeds had there lain buried for many years; but, as Loudon justly observes, it is as probable that the plants in question may have sprung from fresh seeds disseminated by the winds the same season, and which would naturally vegetate freely and rapidly upon soil thus prepared for their reception; the circumstance also, of a tree so peculiar in its aspect remaining unnoticed by ancient Latin authors, and among the rest by Pliny, who would scarcely have overlooked it had it been known in his day, as well as the additional and singular fact that the Lombardy Poplar was not introduced into Tuscany till 1805, are all against the supposition of its Italian origin, and strongly in favour of that of Bosc and other botanists, who suppose it to have been introduced into Italy from Persia, where it abounds, and of which country, as well as the Himmalayas, it is believed to be a native.

As a useful and profitable timber-tree, the Lombardy Poplar is greatly inferior to some of the species already described, the twisted and deeply-furrowed trunk, even of the tallest and largest trees, cutting to much waste, and affording boards of only a moderate size when sawn up. The wood is also softer and more spongy than that of the Black, and the Black Italian Poplars, and rapidly decays unless kept perfectly dry.

In Italy, most of the vessels in which grapes were carried home from the vineyards, were formerly made of the wood of the Lombardy Poplar, its lightness rendering them, even when of very large size, easily manageable; of late years, however, its culture has given way to that of the *Pop. nigra*, a tree found to be more generally useful, and whose wood is equally light, and therefore as well adapted for the purpose above-mentioned. In France, fences are frequently formed of this tree; plants, when about six feet high, being run in lines six inches apart, they are then connected by a horizontal rod about three feet above the ground, and thus treated, produce a fence the first season. In five or six years, the trees composing the fence are either all cut down for various minor purposes, or else they are thinned out, and a certain number left to attain a timber-like size, which they do in eighteen or twenty years; but this mode, Loudon observes, is only followed when the fields enclosed are of such a size as not to be injured by the shade of the trees.

As a tree requiring a free circulation of air and room, it does not thrive in close mixed plantations, or even in masses by itself, on which account it is unfit to be planted even as an undergrowth to furnish poles or inferior sized wood for minor purposes. In Britain, therefore, it is cultivated almost exclusively as an ornamental tree, for which its towering height and spire-like form eminently qualify it, particularly when associated with buildings, and so used either as a counterpoise or supporting mass to these, or to break the uniformity of long horizontal lines. Its use, however, in landscape composition, requires skill and judgment, and a thorough knowledge of the effect to be produced, for placed inadvertently, or without attention to surrounding objects, it more frequently mars than improves the scene, a fact that must frequently have been observed where this tree has been largely and unskilfully introduced.*

From its harmonising so well with buildings, the small space it occupies from its close fastigiate growth, and its patient endurance of smoke, it is a tree peculiarly adapted to ornament cities, towns, and villages, and we should therefore like to see it more freely planted than it has hitherto been, at least in the North of England and Scotland. Around our country residences its use should be much more restricted than in urban scenes, though its introduction is often attended with the happiest effect, and indeed almost necessary to break the monotony of horizontal lines formed by ornamental plantations of round-headed trees; but, as we have previously hinted, judgment and taste must be consulted in their disposition, so as to produce the best and wished-for effect. At the period Gilpin wrote his "Forest Scenery," the Lombardy Poplar had not been long introduced; he speaks, however, in favourable terms, of the young trees growing in the park at Blenheim, then scarce twenty years old, and notices a beauty almost peculiar to itself, viz. the waving line it forms when agitated by the wind, and which he aptly compares to that of an ostrich feather on a lady's head, moving in one simple sweep from the top to the bottom, or, as Leigh Hunt poetically describes it,—

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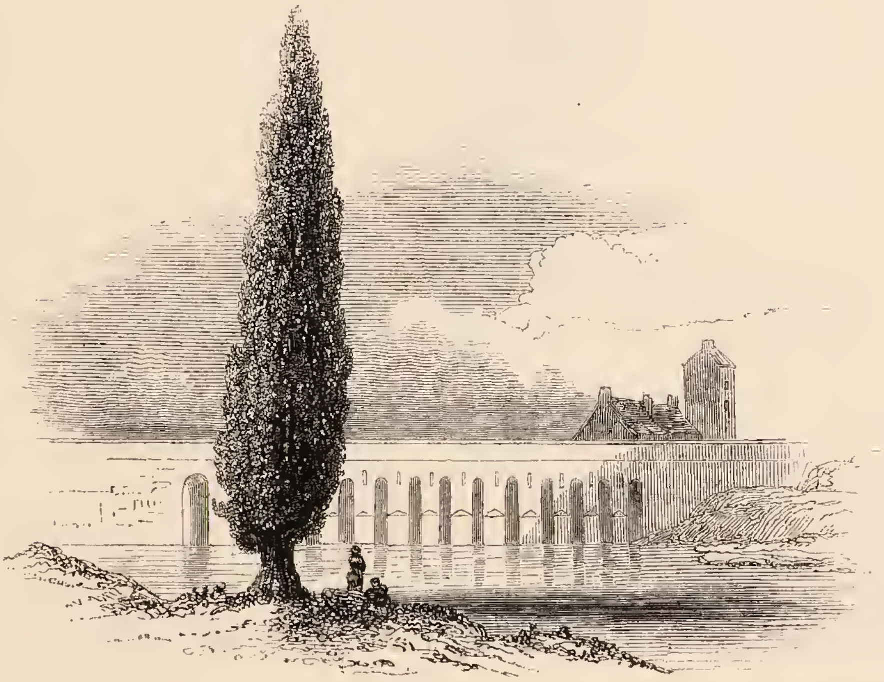
* In the "Arboretum Britannicum" our readers will find some appropriate remarks on the effects produced in landscape by this tree, illustrated by excellent woodcuts.

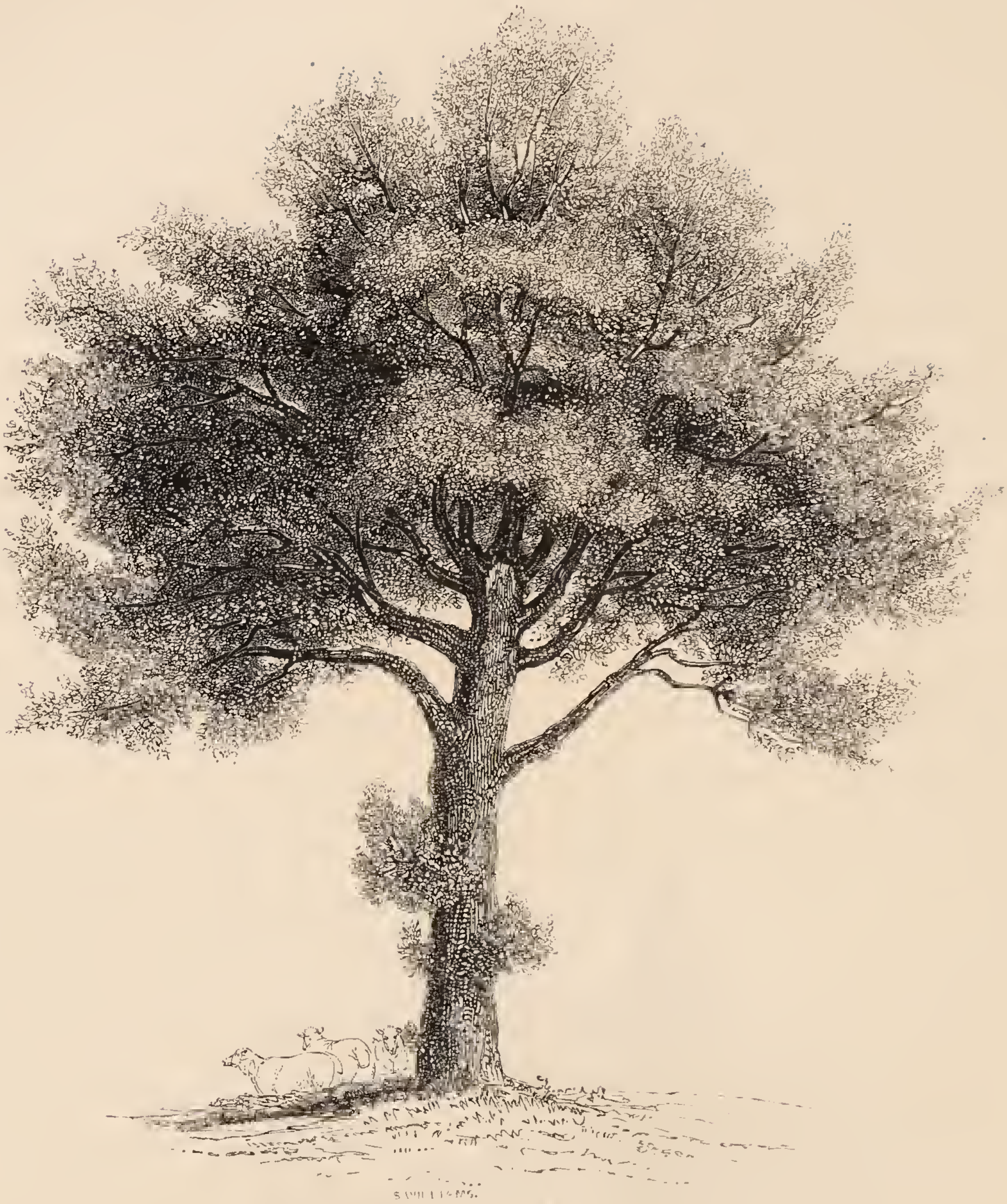
> —————— "The poplar's shoot,
> Which, like a feather, waves from head to foot;"

and not partially agitated, as is the case with most other trees.

It is sometimes planted so as to form a hedge in nurseries, and being cut even at a certain height, and regularly trimmed, becomes a thick and verdant fence; Loudon also recommends it as an excellent tree for sheltering fields or gardens in a flat country, in this case certainly more useful than picturesque.

It is propagated by cuttings of the young wood which root freely, and are fit to be moved to permanent stations after one or two years' growth, but to ensure a large and rapid-growing tree it must be planted in soil of more than ordinary quality. The specific characters are,—disk of leaf deltoid, wider than long, the whole of the edge from the base crenulated, glabrous on both surfaces, petiole compressed. The leaves are the food of various lepidopterous caterpillars, among which are those of *Smerinthus populi*, *Cerura vinula*, and *furcula*, and some of the Notodontidæ.





Populus balsamifera. Linn.

BALSAM POPLAR, or TACAMAHAC.

Populus balsamifera,	Linn. syst. 45.
	Aiton's Hort. Kew. ed. ii. p. 397.
	Michaux, Arb. N. Amer. ii. p. 237.
	Loudon's Arb. Brit. part iii. ch. ciii. p. 1673.

The early period at which it bursts into leaf, cheering the eye with the first green tint of spring, and the fine balsamic odour emitted by the buds and tender leaves,

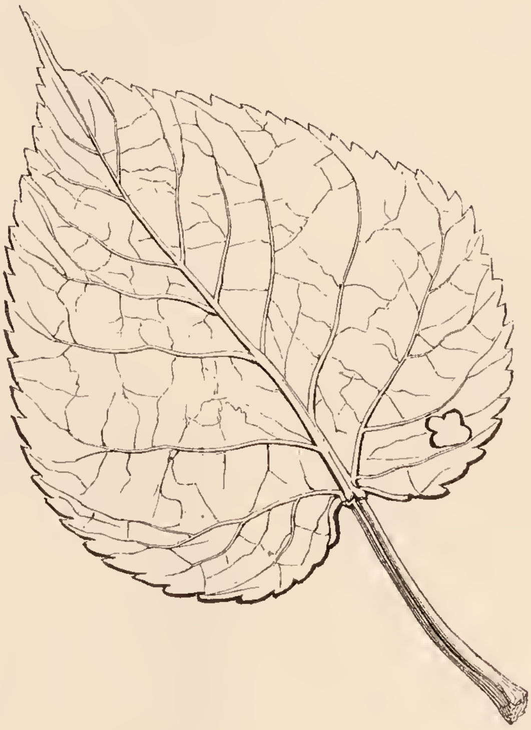
are the chief recommendations of the Tacamahac, for unless planted in a sheltered situation and a rich soil it seldom attains to more than the dimensions of a tree of the second rank, and that without assuming any beauty or peculiarity of form to render it a conspicuous object in ornamental planting. It is a native of North America, reaching to high latitudes, and was found by Sir John Franklin to form the greater part of the drift timber on the shores of the Arctic Sea. It is also indigenous to Northern Asia, being common in Siberia, the Altaic range, and Dahuria. In these districts, according to Pallas, it is seldom seen of large size, but generally as a low round-headed tree. In Canada, according to Michaux, it sometimes reaches a height of eighty feet with a trunk of three feet in diameter.

The wood is of little value, being soft and spongy, and is only fit for packing-boxes, or where a light material is required. It appears to have been one of the earliest trees introduced into England from the American continent, having been cultivated, according to Aiton, in Hampton Court garden in 1692. Into Scotland its introduction was at a much later period, as we are told by Dr. Walker that the first plants were reared in 1768 in a nursery-ground at Leith, from seeds sent from Canada. For a few years it grows very rapidly, and the leaves are large and handsome, but as it acquires age they diminish in size, and the tree generally acquires a scrubby appearance. The shoots are round, and the buds, which are full and large, are protected by a gummy and highly-scented matter, which used to be sent from Canada under the name of *Baume focot*, and was collected from the trees in spring, when the increasing temperature of the season partly melts the resinous varnish, and it collects in drops on the points of the buds.

The leaves are of an ovate-lanceolate shape, the edges serrated, with adpressed teeth, and of a pale yellowish green when first expanded, but when matured of a deep green on the upper surface and whitish green beneath, with glabrous reticulated veins. The catkins of the male are long, the stamens of a purplish red colour. Instances of hermaphrodite flowers are mentioned as having been found on some trees in England, but they are very rare. Its roots run near the surface, and it throws up numerous suckers, on which account it ought never to find a place on lawns or the vicinity of gardens. In addition to the list of Tacamahacs mentioned by Loudon, we may add, a very fine round-headed tree at Belford,* about fifty feet high, with a trunk, at a foot from the ground, seven feet nine inches in circumference; at Twizell, about eighteen years planted, it is thirty-five feet high, and three feet girth at the base.

The leaves are the favourite food of the caterpillar of *Smerinthus populi* as well as of some of those of the genus *Cerura*, also of that of *Notodonta ziczac*, &c.

Nearly allied to the Tacamahac is the *Pop. candicans*, Ontario Poplar, also introduced from North America, and cultivated sparingly for the last thirty or forty years as an ornamental tree. Its leaves are heart-shaped, and much larger than those of *Pop. balsamifera*, and when young it is not quite so fastigiate in its growth.



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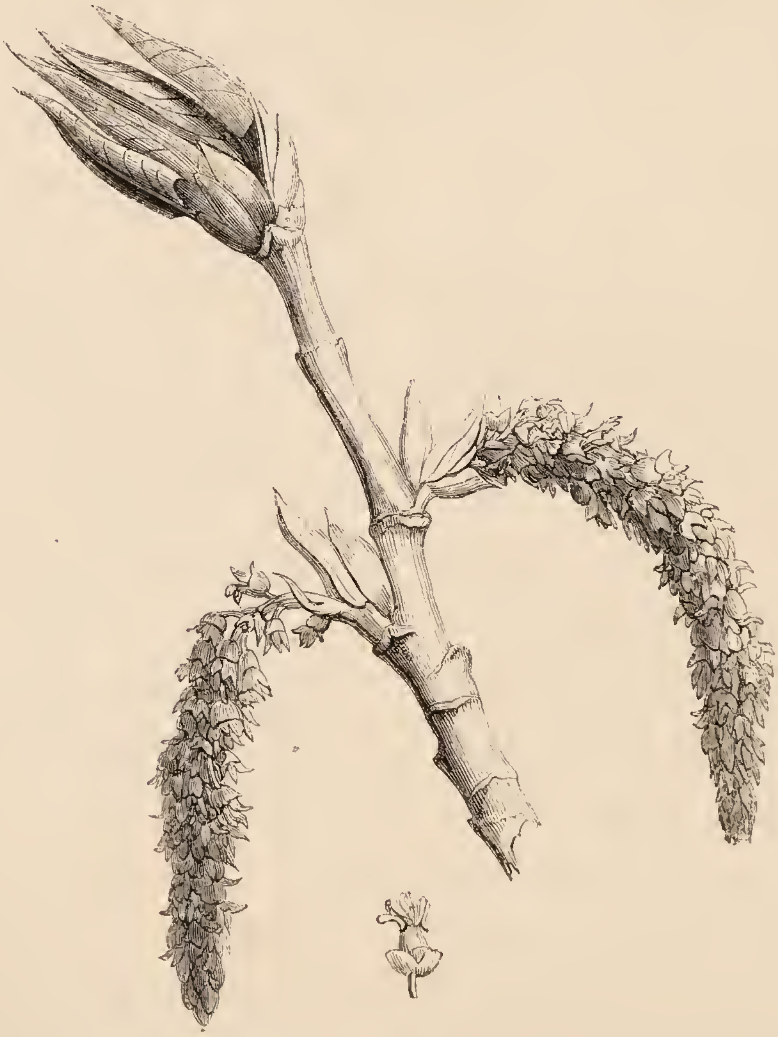
* Our first figure is a portrait of this tree, that on the opposite page of younger growth, showing its usual form.

The buds are large and covered with a gummy substance, but the odour, though approaching to that of the Tacamahac, is even more agreeable and perceptibly different. It grows rapidly at first in a rich moist soil, but seldom attains the dimensions of a very large tree, and it possesses the same disadvantage that attends so many of the tribe, that is of throwing up suckers to a great distance around; we can, therefore, only recommend it as a variety to be planted in woods, or where the underwood it produces is not considered a nuisance. It is readily propagated by cuttings as well as by suckers, as is the case with the Tacamahac.

The wood is soft and not of much value, at least we have not heard anything in its favour, or of its applicability to particular purposes.



Genus *Alnus*. Tournf.

Nat. Ord. Betulaceæ.

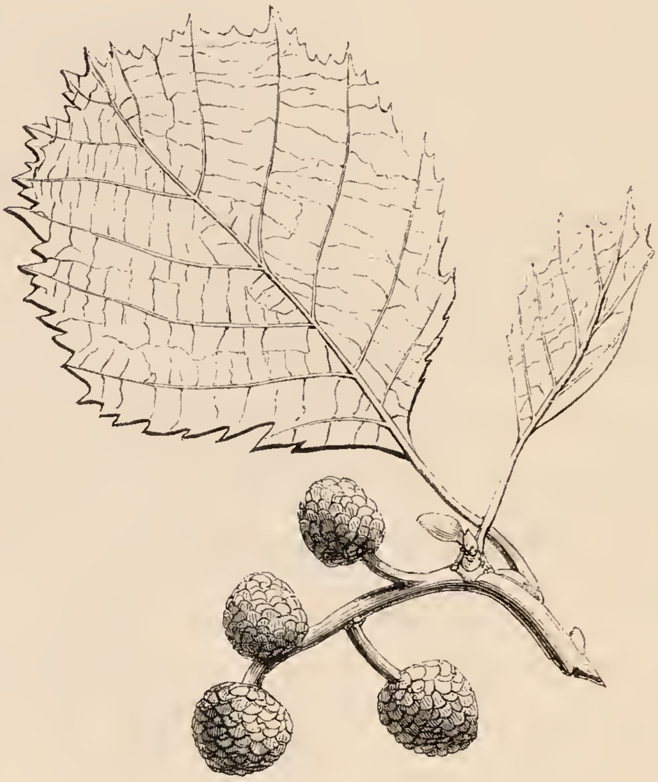
Linn. *Syst. Monœcia Tetrandria.*

Alnus glutinosa. Gært.

THE ALDER.

Alnus glutinosa,
Gært. ii. p. 54.
Smith's Eng. Flor. iv. p. 131.
Hooker's Flor. Scot. 271.
Loudon's Arb. Brit. part. iii. ch. civ. p. 1678.

The specific characters of this species, as contained in our best botanical authors, are, leaves roundish cuneiform, wavy or obtuse lobed on the margin, serrated, and somewhat glutinous, downy at the branching of the veins beneath.



The Alder is one of the commonest of our indigenous trees, being found upon the margins of all our rivers and streams, as well as in damp and marshy ground, and even in morasses and swamps of the wettest description. It is only, however, where the soil is good and at the same time well watered, but not actually swampy, that it attains a large timber-like size; under such favourable circumstances it often reaches a height of fifty or sixty feet, with a trunk of many feet in circumference; of such a magnitude are the fine specimens still existing in the bishop's park at Auckland Castle, and which we find mentioned in Gilpin's "Forest Scenery," and such are many of those which his accomplished editor, Sir T. Dick Lauder, describes as growing upon the banks of the Findhorn and its tributaries, and to these might be added many others which we have met with in our excursions in Scotland and in the north of England. In other situations less congenial to its full developement, whether from an excess of moisture as in swamps, or on the contrary where the ground is porous and the roots cannot retain the requisite quantity of moisture, it becomes stunted in its growth, and is usually seen as a low scrubby-looking tree, seldom rising above twenty or thirty feet in height, and frequently not beyond the dimensions of a large bush. It possesses a very wide geographical distribution, being found throughout the whole of Europe in localities suited to its nature, as well as in the north, the east, and west of Asia, in northern Africa, and a species said to be identical with it inhabits Canada and other parts of the north-west coast of America.

Associated with scenery of a certain description, such as the banks of a stream, whether it be of the slowly-gliding kind, as that of the sluggish Mole, which in Gilpin's estimation derives its principal interest and effect from the presence of this tree, or of the rocky-bottomed and swift-running rivers of the northern parts of the kingdom, the Alder is always an expected, and at the same time a pleasing picturesque adjunct. In cases of the former description it ornaments and gives value to scenes, which otherwise would be tame, nay, unsightly; and in the latter, from the appropriateness of its presence in the vicinity of the limpid fluid, it gives even an additional value to that varied and romantic scenery which their wild and often precipitous banks present.

It is not however from association alone, or the effect produced by combination with other objects, that we look upon the Alder with a favourable eye; individually and independent of extraneous circumstances we consider it to be a tree of no mean merit in an ornamental point of view, at least in those instances where it has been allowed to attain its largest dimensions, and been favoured by soil and situation. Its form, in such cases, is often imposing as well as picturesque, assuming, as Sir T. D. Lauder observes, " much of the bold resolute character of the oak;" and though the deep and dusky green of its foliage has been objected to as investing it with a melancholy aspect, we think that this gives character to the tree, and enhances its interest; and even if its foliage be less generally pleasing than tints of a lighter and livelier hue, the defect, if allowed to be one, is compensated by the retention of its leaves to a very late period of the year, as it is frequently quite green long after the other trees of the forest have become entirely denuded.

Favourable, however, as our opinion of the Alder may appear to be, viewing it as an ornamental tree, and much as we should regret its disappearance from scenery where it is an expected and natural attendant, we are far from advocating its cultivation upon an extended scale, or as a profitable timber-tree; on the contrary, we advise the planter to be chary in admitting it into his grounds, and when he does, always under certain precautions and in limited numbers. In many treatises on planting we find the Alder mentioned, and recommended as a proper plant to fill up moist tracts in woods and artificial plantations; but the authors who thus recommend it, seem not to have been aware that in so doing they were giving directions which, if adopted, would soon convert into a complete morass or bog, ground that otherwise by draining and planting with trees of a different nature might be rendered comparatively dry and productive. Such, however, is the nature of the Alder, that wherever planted it attracts and retains the moisture around it. This effect is occasioned by the nature of its roots which are chiefly composed of a huge mass of small fibres, whose capillary attraction is always in action, and prevents the escape of the redundant water in the vicinity of the plants. This property of creating swamps we have repeatedly observed in the Alder, and from experiments we have made, are fully convinced that a plantation of Alders would soon render the ground (even should it be previously of tolerably sound and dry quality,) soft and spongy, and in time convert it into a decided bog.

The Alder, therefore, in our opinion, ought never to be planted in low bottom ground of a moist or wet nature, (except in particular localities, such as where it is cultivated in the coppice or holt fashion, for the valuable charcoal it produces); if introduced at all, it ought to be where it cannot well retain the water in any quantity around its roots. All moist and spongy land we would recommend to be well drained by open cuts, and then planted with trees whose roots, instead of retaining water, act rather as drains; such are some of the poplars, the ash, &c., whose roots are thick, and extend horizontally to a great distance on every side.

The wood of the Alder is soft and of a homogeneous texture, possessing but a moderate share of lateral and longitudinal adhesion; submerged in water or buried under ground it is almost incorruptible, and on this account, both in ancient and modern times, has been extensively used for piles in the foundation of bridges,* and other water works; exposed to the alternation of dryness and moisture it rapidly decays, as a pole or a post will not stand good for more than a year, but under cover and kept always dry it is very durable and remains unchanged, provided it has previously undergone some preparation, such as impregnation with smoke or pyrolignous acid, or has been saturated with a solution of lime in moss water to prevent the access of the small beetle (*Anobium striatum*), which would otherwise soon attack, and perforate it with its galleries.

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* Evelyn informs us that the bridge of the Rialto, at Venice, is founded upon piles of the Alder.

In Scotland and the north of England it is frequently made into chairs and tables, the latter of which, when formed of the planks of old and knotty trees, are very beautiful, exhibiting, as Sir T. D. Lauder expresses it, "all the beauty of the curled maple, with the advantage of presenting a deep rich reddish tint." Its principal value, however, at present, is for sawing up into herring-barrel staves, for which the demand is yearly increasing, and for this purpose it is annually felled to a great extent upon all the banks of the Highland rivers. Bog Alder, or wood that has lain long in peat mosses, is as black as ebony, for which it is often substituted, but it may be detected by its want of lustre.

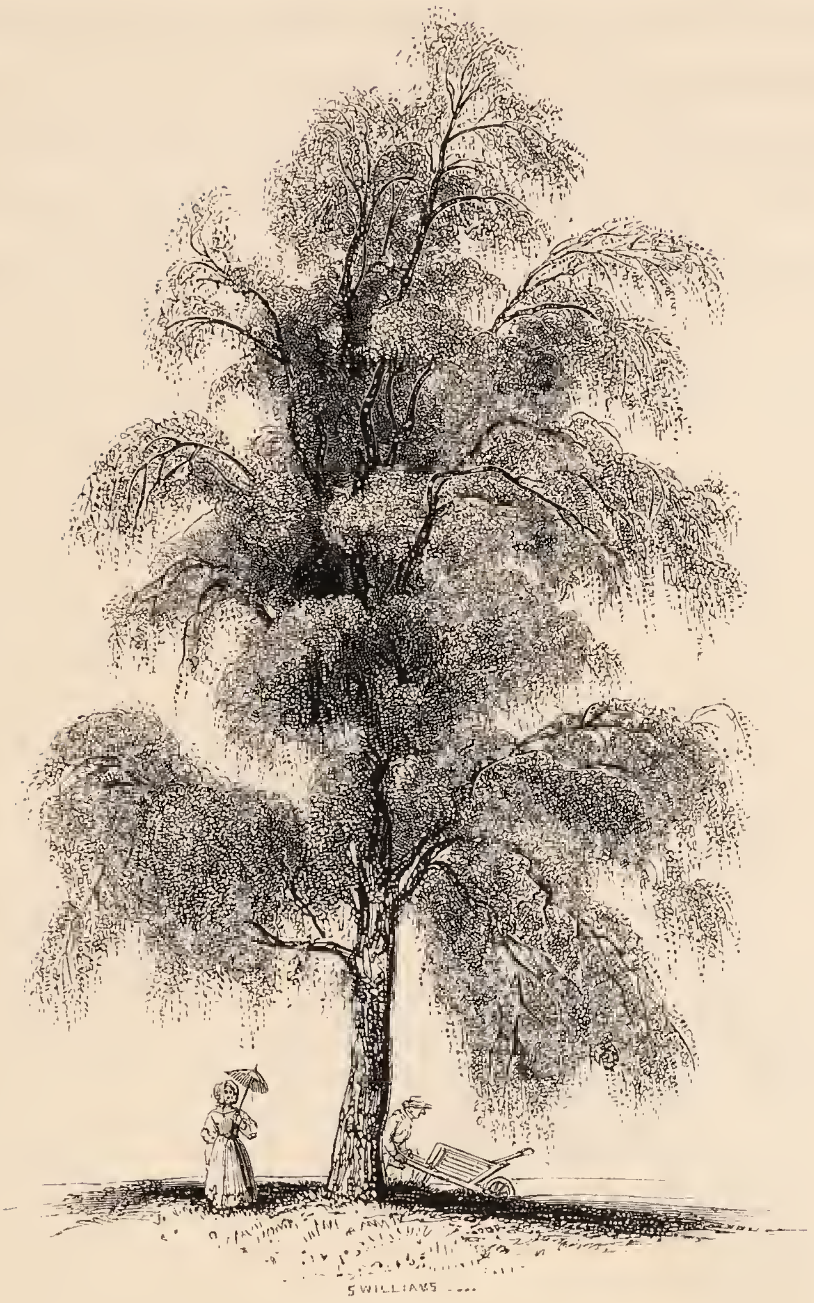
The wood when standing is white, but the moment it is cut into, the surface of the wound becomes of a deep red, which gradually fades into a flesh colour, which it ever afterwards retains. The bark contains a large percentage of tannin, and is used by the tanner with that of other trees; it is also employed for dyeing shades of red, brown, and yellow, and with copperas, (sulphate of iron,) produces a good black. As we have already observed, the charcoal of the Alder is very valuable, and considered one of the best in the manufacture of gunpowder; on this account it is cultivated as a coppice wood, or in holts by the proprietors of the various gunpowder manufactories, and cut over every five or six years. The ramification of the Alder is stiff and unyielding, and in very large and old trees assumes, in some degree, the appearance of that of the oak; the young shoots in saplings, and when in vigorous growth are triangular, but afterwards become round. The bark in old trees is full of clefts and of a dark colour, and the leaves, before they expand, are beautifully folded longitudinally, between the two whitish green stipules which enclose them. The male catkins appear in the autumn, but they do not flower till the following spring, when the female catkins, in the form of small conical cones, are produced on branched footstalks near to them.

The Alder is best propagated from seeds, which always produce more vigorous plants than cuttings or truncheons, as recommended by Evelyn, Boutcher, and others; these no doubt may succeed pretty well when made of shoots of one or two years' growth, but when older and of a large size they are apt to fail. The seed should be gathered in autumn, as soon as the scales of the catkins begin to open, which indicates their maturity, and may be separated from them by spreading them upon a sheet in a dry room and frequently turning them over; some sow the seed in autumn, but as the young plants are apt to be thrown out by the frosts in early spring, this had better be deferred till the month of March; the seed beds should be composed of fine earth, and the covering very light, not exceeding a quarter of an inch in thickness. In five or six weeks the young plants appear, and by the end of the summer they will have attained a height of from four to six inches; in the following spring they may be run into nursery rows, from whence, in the course of a year or two, they will be fit to transfer to their permanent stations.

The insects which feed upon the Alder are very numerous: among the coleoptera, we may particularize the larva of the *Callidium alni*, a handsome longicorn beetle, that feeds upon the living wood, making long galleries in the heart of young trees; the *Clytus arietis* is also found upon it. In some districts the larva of *Adimonia alni*, and a small species of jumping weevil are also common, as well as *Phyllobius alni*, another of the weevil tribe. Among the lepidopterous insects, we have found *Notodonta dromedarius*, *Lophopteryx camelina*, *Acronycta psi*, *Geometra ulmaria*, besides several of the smaller species belonging to the *Tortricidæ* and *Tineidæ*.

CUT-LEAVED ALDER.

Among the varieties of the Alder, the *Al. g. laciniata*, Cut-leaved Alder, forms one of the finest and handsomest, growing with great vigour, and attaining a magnitude fully equal to that of the species; most of the trees recorded by Loudon, (some of which are stated to be upwards of seventy feet high,) belong to this variety, and as it bears a foreign and uncommon aspect and is not met with in a wild state in Britain, it may with propriety be introduced in artificial scenery, where a plant so common as the indigenous Alder would be quite out of place.



Genus *Betula*, Tourn.

Linn. *Syst. Monœcia*
Polyandria.

Betula alba. Linn.

WHITE, or COMMON BIRCH.

Betula alba, Linn. syst. pl. 1393.
Smith's Flor. Brit. 1012. Id. Eng. Flor. iv. p. 153.
Hooker's Flor. Scot. 274. Id. Brit. Flor. ii. p. 411.
Loudon's Arb. Brit. ch. civ. p. 1691.

The specific characters of this tree are thus stated in the English Flora; leaves ovate, acute, somewhat deltoid, unequally serrated, and nearly smooth.

This light, elegant, and airy tree, one of the chief ornaments of our wild and mountainous scenery, is too well known to require any particular or detailed technical description. Throughout Britain and Ireland it is found almost universally distributed in all hilly districts, as well as upon commons and wild tracts, where the soil is poor or of a light and sandy quality. In Scotland it grows at an altitude of three thousand five hundred feet, being a higher zone than that attained by any other of our indigenous trees; but, as might be expected, at this height it is only met with as a low tree or bush. Its geographical distribution in other parts of the world is also very extensive. Throughout the warm and temperate parts of Europe it inhabits all the lofty mountain-

ous districts, at altitudes varying according to their respective latitudes or temperatures; thus, in the Apennines, it commences at a height of about four thousand seven hundred and sixty feet above the level of the sea, and reaches an altitude of six thousand feet. In Lapland the line of the Birch is one thousand nine hundred and thirty-seven feet below that of eternal snow, and eight hundred and two feet above that of the *Pinus sylvestris*. In Russia immense tracts of country are covered with this timber alone, and Loudon remarks; that in the neighbourhood of Moscow it forms the prevailing tree in all the woods and pleasure-grounds belonging to the Russian nobility. It abounds in Sweden and Norway, is also

found in Iceland, and in fact its limits in Europe may be said to be bounded only by vegetation itself. In Asia also it holds a wide domain, inhabiting Siberia as far as the Altaic mountains, and appearing also in the far distant Himalayas. In North America Loudon supposes that it appears in the form of *Bet. populifolia*, though botanists consider that tree to be a distinct species; if, however, plants of *Bet. populifolia* are frequently raised from the seed of the common Birch, *Bet. alba*, as Loudon affirms to be the case, their identity, in our opinion, is proved by so convincing a fact. The most beautiful form of the Birch is that of the pendulous or weeping variety, or, as some call it, variation, which prevails in the highlands of Scotland and mountainous parts of Wales. It generally grows with greater rapidity, and attains a larger size than the common sort; on this account, as well as for its superior beauty, its seed is always collected by the nurserymen in preference to that of the other, so that purchasers are now almost certain of obtaining plants of this improved and superior kind.

Sir T. Dick Lauder has made a remark, which does not appear to have been noticed by other writers, "that in young Weeping Birches, there is a certain degree of roughness on the spray, as if it were the coagulation of a gum exuded from the pores, that never failed to indicate to us the tree which was ultimately to turn out of the pendulous variety." This we have long observed in regard to the plants purchased from the nurseries, and the result has almost invariably proved as Sir T. D. Lauder describes it. This exudation also exists, but in an inferior degree, in *Bet. populifolia*, another indication, we think, of its common origin with the *Bet. alba*;

and we have likewise observed it, though sparingly, upon the young shoots of *Bet. nigra* and *Bet. papyracea*.

In general estimation, as well as in the writings of many arboriculturists, the Birch is usually considered as a tree of a very inferior grade, almost worthless as timber,* and fit only to be grown upon land of too poor a quality to produce wood of a superior kind. Allowing its inferiority to several of our forest-trees, we think its useful properties are greatly underrated, and that, treated with a portion of that care and attention bestowed upon other species, it is equally if not better qualified to make a profitable return to the planter, than many trees we have been accustomed to admit into our mixed plantations. As a nurse or secondary to other trees, more particularly to the oak,† it is, with the exception of the larch, and perhaps upon good land of the gean, or wild cherry (*Cerasus sylvestris*), one of the best that can be used, as it not only occupies less room from its upright and semifastigiate growth, but from the smallness and lightness of its leaves, and the delicate nature of its spray, it is less liable to injure the trees it is designed to nurse and protect, either by overshadowing, or by lashing them in violent winds, than many other kinds that have been more freely introduced into mixed plantations, such as the wych-elm, the ash, the beech, &c.

The profit or return it affords in the way of thinnings, is also, in many situations, quite equal to, or even superior to that afforded by many other kinds of hard wood, as it becomes fit for certain uses some years before the others have attained the size required, its growth being rapid, even upon inferior soils, especially where plants, reared from seed of the pendulous kind have been selected. Thus, for staves for herring and other fish barrels, the demand for which is now so extensive throughout Scotland and the north of England, the Birch attains a sufficient size in fifteen, or at most in twenty years, whereas the elm, the ash, and others, require several additional years to reach an equal diameter.

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* Evelyn speaks of it as the worst of timber.

† The Birch was extensively used as a nurse to the oak in the Duke of Portland's extensive plantations in Nottinghamshire.

Upon a poor weak surface soil, but where the substratum is of a stiff clayey nature, and fit for the oak, we have found a mixture of larch, birch, and oak, the last intended to remain as the ultimate crop, to be the best and most profitable selection. In such a combination, the larch, which are planted in much greater numbers than either the birch or the oak, afford the first two or three thinnings, or until the birch have attained a profitable size, which they will do in eighteen or twenty years; the thinnings after this period may be either of the two kinds conjointly, or entirely of the birch, should the remaining larch promise to attain a large scantling; but should the latter show any inclination to taint or rot at heart, which it sometimes does at the age of fifteen or twenty years upon land of this quality, in that case it should form the whole of the thinnings until entirely exhausted, leaving the birch to be thinned out afterwards as the oaks require additional room. In plantations where the sweet chesnut is intended to form the principal crop, we believe that the larch and birch would prove the most eligible nurses. Upon poor light moist soils, mixed with the larch and the Scotch fir, it also proves the most profitable tree we can grow, and from its hardy nature, and rapid growth upon very inferior soils, it ought to be freely introduced in belts and narrow plantations intended for shelter or breakwinds in open exposed districts.

As an ornamental tree in landscape gardening, the Birch is one of the most beautiful we possess, exhibiting a grace and elegance in its form and foliage that, if equalled, is not surpassed by any other of our indigenous trees, being, as Coleridge expresses it,

> ——————" most beautiful
> Of forest-trees, the Lady of the Woods."

Its introduction, however, into lawns and ornamental grounds ought to be regulated by the situation and circumstances of the place, for we agree with Loudon, that there are certain associations connected with this, and indeed with many other indigenous trees, where such happen to be the prevailing growth of the country, that are unfavourable to their use in artificial, or as he terms it "gardenesque" scenery: thus, it would be inconsistent and contrary to sound principles of taste, or rather, we should say, to the associations attached to this tree in its native habitats, to plant it upon lawns in the Highlands of Scotland, or in any districts where it is indigenous or the prevalent tree; though, as he observes, "in the neighbourhood of London, and many other parts of England, it may justly be admitted, even on lawns, as one of the most elegant of our ornamental trees."

In the romantic scenery of Scotland, the Weeping Birch forms one of its most beautiful and bewitching features; oft have we admired its graceful form, in the well-known pass of Killicrankie, on the shores of Loch Awe, the banks of the Spey, the Dee, and various other well-remembered scenes, and oft have we, when thus enjoying our escape from our lowland home, been reminded of that passage in the "Isle of Palms," where

> ———————————— on the green slope
> Of a romantic glen we sat us down,
> Amid the fragrance of the yellow broom,
> While o'er our heads the weeping birch tree streamed
> Its branches, circling like a fountain shower.

The fragrance of the Birch is also an additional recommendation that it possesses; this it gives out at all times when in leaf, but more particularly in spring, when the leaves first expand, or after rain and heavy dews: and we cordially agree with Sir T. D. Lauder, that a few Birch trees should always be planted near a house, if it be only for the fragrance they emit.

As a wood the Birch may be deemed of a secondary quality; for, though under cover and protected from damp, its durability is considerable, it very speedily rots and decays when in contact with the earth. Its grain is rather coarse, but has a satiny texture, and its colour white, mixed or shaded with red. A vast quantity of Birch timber is annually cut up for the staves of herring barrels; and indeed this is the principal use to which it is now applied in the north of England and Scotland, except in some parts of the Highlands, where it is still the timber used in the construction of houses, and where not only the greater part of the household furniture, but also of agricultural implements are made of it. It is also used, together with the wood of the alder, for the soles of clogs, a kind of shoe much worn during winter by agricultural labourers in the north of England and Scotland.

Upon the Continent the wood of the Birch is more highly appreciated, and applied to a greater variety of uses than in Britain. In parts of France it forms the felloes of wheels, and in Russia is converted to this and many other purposes. In Sweden, and other northern countries, it is made into furniture, but for this it must be of a great age, otherwise it warps, and is liable to the attack of the worm. In all these northern parts it is a tree of inestimable value to the inhabitants, as, in addition to the uses already stated, it affords one of the best and most ardent fuels, and in Sweden is that most generally used for the iron-smelting furnaces; the outer bark, also, which may be termed imperishable, (as it remains uncorrupted for ages,*) is used instead of tiles or slabs as a covering for houses, and so completely does it resist decay, that the Norwegians generally cover their bark roofs to the depth of a foot or more with earth: it also makes a coping for walls and other erections where protection from moisture is required; and, being very inflammable, is used instead of candles. By the Laplanders the bark is made into baskets, neat compact boxes, mats, as well as cordage for harnessing their reindeer; of it they also make their water-proof boots and shoes; the legs of the boots being taken entire from the trees, and therefore without any seam, and a piece of it with a hole cut so as to admit the head, forms an impenetrable cloak, or cape, in wet weather. From the leaves and young shoots a good yellow dye is obtained; but to enter into all the uses mentioned by authors to which the various parts of the Birch are applied, would occupy more space than we can afford.

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* In the "Nov. du Hamel," we are informed that in the ruins of Dworotrkoi in Siberia, a piece of Birch wood was found changed into stone, while the epidermis, white and shining, remained in its natural state.

In England, when grown in artificial plantations, it is generally treated as a coppice-wood or undergrowth, and is cut down at the age of five or six years for brooms, hoops, crate ware, &c., or at the age of ten or twelve for fagot wood, poles, and small fencing. In Scotland, at the age of fifteen or twenty, it is fit for herring-casks, and when a fall takes place the trees are barked, and the produce sold to the tanners at about half the price of oak bark. The charcoal made from the Birch is excellent, and is extensively used in the manufacture of gunpowder, and it forms a fine crayon for the artist. From the sap obtained by tapping the tree in early spring a refreshing and wholesome beverage may be manufactured; upon which subject Evelyn is very diffuse, but our readers will obtain all the information requisite for the making of it in a much shorter recipe contained in the "Arboretum Britannicum." In Russia, the bark is subjected to distillation, and an oil is obtained, which is employed in the tanning of hides, and gives that powerful but not disagreeable scent peculiar to Russia leather, and which, when employed in the binding of books, is supposed to keep away the attacks of the *Ptinidæ* and other insects.

The Birch is now almost invariably raised from the seed, which ripens in September or October, and may either be sown as soon as gathered, or kept dry in some airy place during winter, and sown in spring: in the first case it vegetates early, but is sometimes apt to be cut off, or thrown out of the ground by frost; in the second it does not vegetate till May or June, but is then safe from any injury from the above-mentioned causes. The seed-bed should be composed of fine light rich mould, and when sown, the seeds, instead of being covered with earth, should be merely clapped down with the back of the spade; and to defend them from winds and frosts if sown early, a little straw, pease-haulme, or other slight covering, may be thrown over them. In the following spring the seedlings may be drawn from the bed, and run into nursery rows, from whence they will be fit to transplant to their permanent stations in two years, or even in one, if small plants are preferred.

The Birch once planted requires very little attention or pruning, and indeed the knife should never be used except to remove a second or supernumerary leader. In districts where the Birch abounds, many seedlings annually spring up, and from this source nurseries when first established were almost entirely stocked, and some nurserymen are still supplied to a considerable extent in this way. It is asserted that these native seedlings root much better than plants taken out of a regular seed bed; but purchasers, we think, run a much greater risk of getting an inferior tree, than where care has been taken to select and gather seed from the finest specimens of the pendulous kind. The disease most common to the Birch shows itself in tufts or excrescences composed of small anastomosing twigs, upon the upper branches; these, when seen at a distance, resemble the nests of crows or other large birds. This disease seems to proceed from an extravasation of the sap, of the precise cause of which we are ignorant, though we think it more likely to originate from some contamination proceeding from the nature of the soil, than from the puncture of an insect. It is most prevalent upon ill-conditioned trees of the common sort, and though we have seen it affect them in a variety of soils, it is most common upon such as grow in that of a boggy or moorish nature.

Various insects and their larvæ feed upon the Birch; among the Lepidoptera we have found the caterpillars of the following, in this district: of the Bombycidæ, *Leiocampa dictæa*, and *Lophopteryx camelina ;* among the Noctuidæ, *Cosmia fulvago ;* and of the Geometridæ, *Lampetia capreolaria*, *Lam. prosapiaria*, *Lam. defoliaria*, *Biston betularius*, *Cabera exanthemata*, as well as others belonging to the smaller moths. *Deporaus betulæ*, and *Rynchites betulæ*, belonging to the *Curculionidæ*, or weevil tribe, and which feed upon the leaves and buds, both in the larva and imago state, are among the coleopterous insects ; the decaying stumps and trunks are the food of the *Rhagium inquisitor*, and *Leptura quadrifasciata*, beetles belonging to the *Cerambycidæ*, or longicorn division. The caterpillars of several *Tenthredinidæ*, or saw-flies, also feed upon Birch leaves ; among these are *Cimbex femorata*, *Trichiosoma sylvaticum*, *Selandria betuleti*, and *Lyda betulæ.* Among the fungi which grow upon the decaying wood, we may notice the *Polyporus betulinus*, specimens of which we have often found eight or ten inches in diameter. The fleshy substance of the fungus, which is of a pure white, and of a corky or pith-like nature, when dried and cut into slices makes an excellent lining for insect boxes, and is also often used as a razor strop. The *Agaricus muscarius*, whose poisonous and extraordinary effects upon the system are described in a paper by Dr. Greville, contained in the fourth volume of the Wernerian Nat. Hist. Soc. Transactions, is also found in Birch woods.

Of the various American Birches none have yet been planted with a view to profit as timber trees, though several have for many years been cultivated for their ornamental qualities. Among these is the *Betula populifolia*, which Loudon supposes to be a variety of the common Birch ; its foliage is handsome, but it does not attain the size of our native trees, and the wood is not superior in quality. *Bet. papyracea* is another handsome species, and is the tree that affords the bark, of which the light canoes in North America are constructed. *Bet. nigra*, or the Red Birch of America, is another, but it appears to require a warmer summer than our own to bring it to maturity. *Bet. lenta*, from the superior quality of its wood, as well as its rapid growth and ornamental properties, well deserves the attention of our planters, and being a native of Canada, there is little doubt but that it would succeed and attain its full dimensions in most parts of Britain.

Nat. Ord. Corylaceæ.

Genus *Quercus*, Linn.

Linn. *Syst. Monœcia Polyandria.*

THE OAK.

Of this numerous and most important genus, the various species of which are distributed throughout the temperate regions of the globe, Britain can only claim two as truly indigenous to her soil; these two, however, (if indeed specifically distinct,) are by far the most important of their kind, surpassing all other known species, not only in grandeur of form, bulk, and duration of life, but in the strength, durability, and general excellence of their timber, which for all purposes where these two qualities are essentially requisite, if equalled, at all events is not surpassed by that of any other European tree. Our navy attests its superiority in the construction of ships; while the sound and uncorrupted state in which it is found in buildings and other works of ancient date, is a proof of its general utility and fitness for every purpose where durability and strength is required. The rest of the Oaks, evergreen as well as deciduous, amounting, we believe, to upwards of one hundred and fifty botanical species, are all of exotic origin, and are distributed in the various regions of the globe either where these are rendered temperate by their latitudinal position, or in tropical climates by their elevation.

Of the European deciduous species, the next in rank to the common Oak, in point of magnitude and other properties, is the *Quercus cerris*, Turkey Oak. This tree we are disposed to admit within the limits of our volume, not only on account of its ornamental qualities, which are considerable, but from a wish, if possible, to encourage its culture on an extended scale; being convinced, from the observations we have made, that it is a tree better calculated, from its rapid growth, and the nature of its timber, to repay the planter, than many others we are in the habit of introducing into our mixed plantations.

Of the evergreen or Ilex division, the common evergreen Oak, *Quer. Ilex*, a native of the southern parts of Europe, is the only one that has been planted to any extent, or that seems able to bear the vicissitudes of our climate, and to attain the dimensions of a second-rate tree. Its culture, however, is likely to be always restricted to ornamental purposes, as it is of too slow a growth and inferior a size to make it an object of profitable speculation to the planter; and its wood, though hard and durable, is very liable to split and crack in drying.

Of the various North-American Oaks, many are distinguished for the beauty of their foliage, particularly those whose leaves in Autumn become of a rich red, or scarlet tint; their timber, however, is open in texture, and generally very inferior to that of our own species, or even to that of *Quer. cerris*, with the exception of *Quer. alba* and *Quer. virens*, two species highly valued for naval purposes in America, but neither of which are likely to succeed in this climate; the introduction, therefore, of the American Oaks, is likely to continue on a limited scale, and more for the variety and ornament their foliage produces in our pleasure-grounds, than from any expectation of profit from the timber they produce.

In addition to the hard and durable quality of the wood of many members of this genus, the bark of all the species contains a large proportion of tannin and gallic acid, and is more extensively used in the manufacture of leather than that of any other tree; the bark of *Quer. tinctoria* also affords a very valuable yellow dye, and the oak-galls which are produced by the puncture of certain insects, and are a receptacle for their eggs and larvæ, form an extensive article of commerce, and besides being the chief ingredient in the manufacture of ink, are much used for dying black. From the *Coccus Ilicis*, or *Kermes*, a small hemipterous insect that infests a species of the Oak, a fine scarlet dye is obtained, which appears to have been known from a very remote period; the use of this insect has, however, of late years, given place to the cochineal, another member of the same family, inhabiting South America, where it is found upon certain species of Cactus.

The acorns, also, of the Oaks, besides forming an important portion of the food of various animals and birds, are many of them edible, and a wholesome human food. In Spain they are extensively consumed as a fruit, and we have tasted of some from that country equal, if not superior in flavour to the finest chesnuts. The species which produce the finest edible acorns are said to be the *Quer. ballota*, *Quer. esculus*, and *Quer. Grammuntia*, of botanists and the catalogues, all belonging to the ever-green section.*

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* According to the author of "Sketches in Spain," the *Encina* of that country, which bears such delicious and highly-prized acorns, is identical with the *Q. Grammuntia* of authors; it further appears that this species prevails throughout the greater part of the Peninsula, and is the natural growth of the soil. It is, therefore, to be regretted that a more appropriate name had not been given to it, as it no longer exists in the locality from whence it took the appellation, and where, in all probability, it had been planted; the wood at Grammont, near Montpellier, we believe, being no longer in existence.

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